

Warm Up # 9-4

1. A bag has 3 red, 4 yellow and 5 blue marbles. Two are selected at random without replacement. Find the probability that:
 - a) both are blue
 - b) they are the same color
 - c) at least one is red
 - d) exactly one is yellow

2. An art gallery has 25 rooms. 17 have sculptures, 19 have paintings and only the coat room has neither. If a visitor enters a room at random, find the probability that the room has:
 - a) paintings and sculptures
 - b) only one type of art

HW Questions: p. 284

- 4 Lachlan selects a ball from a bag containing 5 red balls, 2 green balls, and 1 white ball.

He is then allowed to take lollies from a lolly jar. The number of lollies is determined by the colour of the ball as shown in the table.

Find the average number of lollies Lachlan would expect to receive.

Colour	Number of lollies
Red	4
Green	6
White	10

$$\frac{5}{8}(4) + \frac{2}{8}(6) + \frac{1}{8}(10)$$

$$\begin{array}{r} 5R \\ 2G \\ 1W \\ \hline 8 \end{array}$$

- 5 When ten-pin bowler Jenna bowls her first bowl of a frame, she always knocks down at least 8 pins.

$\frac{1}{3}$ of the time she knocks down 8 pins, and $\frac{2}{5}$ of the time she knocks down 9 pins.

- a Find the probability that she knocks down all 10 pins on the first bowl.

- b On average, how many pins does Jenna expect to knock down with her first bowl?

$$\frac{1}{3}(8) + \frac{2}{5}(9) + \frac{4}{15}(10)$$

p. 285

- 4 A person plays a game with a pair of coins. If two heads appear then £10 is won. If a head and a tail appear then £3 is won. If two tails appear then £1 is won. It costs £5 to play the game. Find the expected gain for this game.

- 5** A person selects a disc from a bag containing 10 black discs, 4 blue discs, and 1 gold disc. They win \$1 for a black disc, \$5 for a blue disc, and \$20 for the gold disc. The game costs \$4 to play.
- Calculate the expected gain for this game, and hence show that the game is not fair.
 - To make the game fair, the prize money for selecting the gold disc is increased. Find the new prize money for selecting the gold disc.

- 6** In a fundraising game 'Lucky 11', a player selects 3 cards, without replacing them, from a box containing 5 red, 4 blue, and 3 green cards. The player wins \$11 if the cards drawn are all the same colour, or are one of each colour. If the organiser of the game wants to make an average of \$1 per game, how much should they charge to play it? *(6 ways)*

X	RRR	BBB	GGG	RBG	2 same
\$win	\$11	\$11	\$11	\$11	0
P(X)	$\frac{10}{220}$	$\frac{4}{220}$	$\frac{1}{220}$	$\frac{60}{220}$	

Expected Return (Winnings) $-$ cost to play = Expected Gain

$$\left(\frac{11}{220} (10 + 4 + 1 + 60) \right) - C = -1$$

Today's Classwork:

Rev. Set 9A,

p. 296 # 2 - 9

Classwork Week 9

Warm up

9E p.277, #1, 2, 8

9G.1 p.282, #1 - 6

9G.2 p.283, #1 - 3

9G.3 p.284, #1 & 3

Rev. Set 9A

HW: Rev. Set 9B p. 296

1 - 9 (skip 5b & 7)

Look over your notes and assignments on
Sets, Notation and Venn Diagrams (Ch. 7)

Test tomorrow:

Sets, Venn Diagrams and Probability